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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KATCOFF, MATTHEW GORDON

ART UNIT

PAPER NUMBER

4137

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,216	Applicant(s) YANG ET AL.	
	Examiner Matthew G. Katcoff	Art Unit 4137	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Concerning claim 12, it is unclear how both ends of the spiral conveyor can be connected to the hopper and the material feeding pipe.

Concerning claim 13, line 2 refers to one inner flange plate but line 4 makes claims at least one. Further it is unclear if the inner and outer flange plates are at both the left and right side of the casing or one on the left and the other on the right.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S.

Patent No. 6,065,697 to Engel et. al. (*Engel*).

Concerning claim 1, *Engel* discloses a bi-negative pressure turbine (24) which comprises a base plate (60) and a plurality of blades (64,65) provided both

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at both sides of the base plate and having the same spiral orientation, wherein the blades are uniformly arranged in a circumference direction of the base plate; and the blades at one side of the base plate are able to alternate with those at opposite sides (see figure 5 which shows blades on each side of the base plate since there is another set of blades on the base plate below).

Concerning claim 2, *Engel* discloses each blade having a curved profile with an L-shaped cross-section (see figure 8) is composed of a base (64) and a rib portion (65) extending from the base in a direction perpendicular to the base with two screw holes perforated at an inner side portion of the base (see figure 8) which bolts are inserted to fix the blades onto the base plate (column 6, lines 59-63).

Concerning claims 3 and 4, *Engel* inherently discloses the blade having an inclined surface with the angles claimed.

Concerning claim 5 and 6, *Engel* discloses in figure 8 the claimed limitations.

Concerning claim 7, *Engel* discloses a plurality of toothed impact plates (70) arranged in pairs between two adjacent blades (see figure 8) at both sides of the base plate (see figure 5 which shows toothed impact plates on each side of the base plate since there is another set of blades on the base plate below).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Engel* in view of U.S. Patent No. 6,179,234 to Marshall et. al. (*Marshall*).

Concerning claim 8, *Engel* discloses in figures 11 and 14 a mounted portion (72) and an operating portion (70) formed on it top with rectangular teeth (80) extending in a circumference direction of the base plate. *Engel* discloses a single mounting hole (76) with a bolt (74) on the mounting portion as well as a slot (see figure 9). It would have been obvious to a person of ordinary skill in the art at the time of the invention to add an additional hole and bolt as this is merely the duplication of parts (see *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)).

While *Engel* does not disclose a swallow tail slot, *Marshall* does disclose such a slot (30) for its toothed impact plate (24). It would have been obvious to a person of ordinary skill in the art at the time of the invention to use such a slot because as disclosed by *Marshall* it is common in the art (column 1, lines 30-40) and further holds the plates in place against the force of impact (column 1, lines 47-51).

7. Claims 9, 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Engel* in view of U.S. Patent Application No. 2003/0098374 to Kang (*Kang*).

Concerning claim 9, *Engel* discloses a high turbulence mill (10) comprising: a drive device (20) provided on a base (18) and inherently comprising a motor and a driving shaft (21) coupled with said motor; a hollow grinding case (24) arranged above the base; a bi negative pressure turbine (24) rotatably mounted within the grinding case and driven by the driving device; a hopper (32) for delivering the material via a material feed pipe (34); a material discharge pipe (38) communicated with the grinding case; and a control device (the apparatus is inherently controlled by some device).

Engel does not disclose a toothed ring shaped guide stator.

Kang discloses a toothed ring shaped guide stator (63) fixed to the inner circumference of the hollow grinding case (30).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to add *Kang*'s guide stator to *Engel*'s apparatus because as disclosed by *Kang* this stator helps maintain a gap to form a crushing zone (§20, lines 9-12).

Concerning claim 12, neither *Kang* nor *Engel* disclose the claimed collecting apparatus.

A spherical connector, a cyclone collector, a cloth bag collector and an inducing fan in series are known in the art as disclosed in applicant's admitted prior art (page 8 lines 27-30).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to this as there needs to be some means of collecting the finished product and this is a common method in the art.

Concerning claim 13, *Engel* discloses the grinding case (24) with an inner flange plate (98) and an outer flange plate (43); a mounting hole (98) formed at the center of the inner flange plate and the driving shaft goes through the mounting hole and is fixed to the bi-negative pressure turbine by a bolt (see top of figure 5); a material inlet in formed on a region of the inner flange plate (30) with the material feeding pipe connected; and a material outlet (38) is formed at a center portion of the inner flange plate and the material discharge pipe is connected to the outlet.

Concerning claim 14, the stator guide disclosed by *Kang* contains 50 or more serrated teeth and a tooth angle between 40 and 50 degrees.

Concerning claim 15, the structural limitations are encompassed by claim 1, thus claim 15 is rejected for at least the same reasons.

Concerning claim 16, the structural limitations are encompassed by claim 2, thus claim 16 is rejected for at least the same reasons.

Concerning claim 17, the structural limitations are encompassed by claim 3, thus claim 17 is rejected for at least the same reasons.

Concerning claim 18, the structural limitations are encompassed by claim 4, thus claim 18 is rejected for at least the same reasons.

Concerning claim 19, the structural limitations are encompassed by claim 5, thus claim 19 is rejected for at least the same reasons.

Concerning claim 20, the structural limitations are encompassed by claim 6, thus claim 20 is rejected for at least the same reasons.

Concerning claim 21, the structural limitations are encompassed by claim 7, thus claim 21 is rejected for at least the same reasons.

Concerning claim 22, the structural limitations are encompassed by claim 8, thus claim 22 is rejected for at least the same reasons.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Engle* in view of *Kang* as applied to claim 9 above, and further in view of U.S. Patent 3,688,991 to Andrews (*Andrews*).

Neither *Engle* nor *Kang* discloses the grinding case being water cooled.

Andrews discloses a grinding case (56) which is water cooled (column 5, lines 54-55) and having inner (80) and outer chamber (12) with the outer chamber in contact with the circulating water.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to add water cooling to the combination of *Engle* and *Kang* because it is the combination of known elements in the art with the predictable result of cooling the material.

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9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Engle* in view of *Kang* as applied to claim 9 above, and further in view of U.S. Patent No. 3,978,978 to Herter (*Herter*).

Neither *Engle* nor *Kang* discloses a spiral conveyor.

Herter discloses a spiral conveyor (14) driven by a motor (32) connected to a hopper (15). It is inherently connected to a material feed pipe since the material has to have an outlet.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to add *Herter's* spiral conveyor to the apparatus of *Engle* and *Kang* because as disclosed by *Herter*, the spiral conveyor moves the material along and can also provide an initial comminution (column 2, lines 9-12).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,732,894 to Sheahan which discloses an apparatus similar to claim 1.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew G. Katcoff whose telephone number is (571) 270-1415. The examiner can normally be reached on M-F 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jackson can be reached on (571) 272-4697. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. G. K./
Examiner, Art Unit 4137
07/31/09

/Gary Jackson/
Supervisory Patent Examiner
Art Unit 4137